CLAIMS

What is claimed is:

1. An external processor for a network access system having a programmable
access device, said external processor comprising:

a service controller that provides at least one service for network traffic;

a message processor that processes network messages for service processing
by the service controller; and

a programmable access device controller that programs an associated
programmable access device in response to service controller processing.

2. The external processor of Claim 1, wherein the external processor includes a
plurality of service controllers including said first service controller, wherein each of
said plurality of service controllers implements a respective one of a plurality of
services.

3. The external processor of Claim 2, wherein the plurality of service controllers
includes primary and secondary service controllers for a particular service among said
plurality of services, and wherein the secondary service controller provides said
particular service to said programmable access device if said primary service
controller fails.

4. The external processor of Claim 2, wherein said plurality of service controllers
includes a second service controller in communication with said first service
controller such that a network message can be serviced by both of said first service

4 controller and said second service controller.

1 5. The external processor of Claim 2, wherein the external processor is coupled

2 to a plurality of programmable access device, and wherein at least one of the plurality

3 of service controllers performs service processing for less than all of said plurality of

4 programmable access devices.

1 6. The external processor of Claim 1, wherein the service controller includes

2 means for injecting a packet into a traffic flow handled by the programmable access

3 device.

1 7. The external processor of Claim 1, wherein the service controller supports a

2 service policy interface through which the service controller requests policy decisions

3 from a policy server.

1 8. The external processor of Claim 1, wherein the external processor includes a

2 policy cache that selectively caches policies obtained from the policy server.

1 9. The external processor of Claim 1, and further comprising a reporting

2 processor that provides an interface through which a reporting event received from the

3 programmable access device is communicated to the service controller.

1 10. The external processor of Claim 1, and further comprising a signaling

2 controller that transmits signals to configure network hardware to provide network

3 connections.

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11. The external processor of Claim 10, wherein the signals specify a quality of service.

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12. The external processor of Claim 1, wherein the service controller comprises session management means for causing the programmable access device controller to signal the programmable access device to end a session receiving enhanced service.

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13. The external processor of Claim 12, wherein the session receiving enhanced service is a Transport Control Protocol (TCP) session, and wherein the session management means comprises means for causing the programmable access device controller to signal the programmable access device to delete the TCP session state in response to a session activity level.

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14. The external processor of Claim 1, wherein the service controller comprises a conference call service controller.

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15. The external processor of Claim 1, wherein the service controller comprises an e-commerce service controller.

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16. The external processor of Claim 1, wherein the service controller comprises an internet protocol telephony service controller.

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17. The external processor of Claim 1, wherein the service controller comprises a reserved bandwidth service controller.

18.   The external processor of Claim 1, wherein the service controller comprises a multicast service controller.

19.   A method of providing service to selected messages with an external processor in a network access system having a programmable access device, said method comprising:

receiving a network message at the external processor from the programmable access device;

performing service processing in response to the network message with a service controller of the external processor; and

programming the programmable access device in accordance with the service processing.

20.   The method of Claim 19, wherein performing service processing comprises performing each of a plurality of services in response to network messages with a respective one of a plurality of service controllers.

21.   The method of Claim 20, wherein the plurality of service controllers includes primary and secondary service controllers for a particular service among said plurality of services, and wherein the method further comprises:

in response to failure of communication with said primary service controller for said particular service, performing service processing utilizing the secondary service controller.

22.   The method of Claim 20, wherein performing service processing comprises performing a plurality of services in response to a single network message utilizing a plurality of service controllers.

23.   The method of Claim 20, wherein the external processor is coupled to a plurality of programmable access device, and wherein the method further comprises:

    with at least one of the plurality of service controllers, performing service processing for less than all of said plurality of programmable access devices.

24.   The method of Claim 19, wherein performing service processing includes injecting a packet into a traffic flow handled by the programmable access device.

25.   The method of Claim 19, wherein performing service processing comprises requesting a policy decision from a policy server.

26.   The method of Claim 25, and further comprising selectively caching, in a policy cache of the external processor, policies obtained from the policy server.

27.   The method of Claim 19, and further comprising:

    receiving a reporting message from the programmable access device; and

    performing service processing with the service controller in response to the reporting message.

28.   The method of Claim 19, and further comprising signaling network hardware from the external processor to provide a network connection.

29.   The method of Claim 28, wherein signaling network hardware comprises specifying a quality of service for the network connection.

30.   The method of Claim 19, wherein performing service processing comprises signaling the programmable access device to end a session receiving enhanced service.

31.   The method of Claim 30, wherein the session receiving enhanced service is a Transport Control Protocol (TCP) session, and wherein signaling the programmable access device to end a session receiving enhanced service comprises signaling the programmable access device to delete the TCP session in response to a session activity level.

32.   The method of Claim 19, wherein performing service processing comprises performing conference call service processing.

33.   The method of Claim 19, wherein performing service processing comprises performing e-commerce service processing.

34.   The method of Claim 19, wherein performing service processing comprises performing internet protocol telephony service processing.

1   35.   The method of Claim 19, wherein performing service processing comprises
2   performing reserved bandwidth service processing.

1   36.   The method of Claim 19, wherein performing service processing comprises
2   performing multicast service processing.